AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1-116 (Cancelled)

Claim 117 (Currently Amended): A nucleic acid displacer composition comprising an isolated oligo- or polynucleotide displacer, which binds to or complexes with a recipient polynucleotide duplex to form a displacer-recipient complex, said oligo- or polynucleotide displacer comprising two or more sequences:

a) at least one first sequence which binds or complexes with said recipient polynucleotide duplex through triplex strand formation;

b) at least one second sequence, said second sequence:

(i) being complementary to at least a portion of one strand of said recipient polynucleotide duplex and being base-paired with said portion;

(ii) comprising one or more modified nucleotides that increase stability; and

(iii) comprising one or more nucleotides that form a mismatch with said strand of the recipient polynucleotide duplex.

wherein said displacer changes at least one nucleotide or a nucleotide sequence in said recipient polynucleotide duplex of a triplex displacer complex formed by said displacer and said recipient polynucleotide complex when the displacer is introduced to the recipient polynucleotide duplex and said complex is within a cell.

Claim 118 (Previously Presented): The composition of claim 117, wherein said second sequence is adjacent to said first sequence.

Claim 119 (Previously Presented): The composition of claim 117, wherein said second sequence is separated from said first sequence by from 1 to 5 intervening moieties.

Claim 120 (Previously Presented): The composition of claim 119, wherein one of said intervening moieties has an intercalating agent covalently attached thereto.

Claim 121 (Previously Presented): The composition of claim 119, wherein said intervening moieties are nucleotides.

Claim 122 (Previously Presented): The composition of claim 120, wherein at least one of said moieties is a modified nucleotide.

Claim 123 (Previously Presented): The composition of claim 122, wherein said modified nucleotide has an intercalating agent covalently attached.

Claim 124 (Previously Presented): The composition of claim 122, wherein said modified nucleotide is incapable of base pairing.

Claim 125 (Previously Presented): The composition of claim 117, wherein at least one said nucleotides complementary to said strand of recipient polynucleotide duplex is modified to increase the stability of the displacer-recipient complex, wherein the medication is in the second sequence.

Claim 126 (Withdrawn): The composition of claim 117, wherein at least one of said nucleotides complementary to one strand of a recipient polynucleotide duplex is modified to increase the melting temperature of the displacer-recipient complex.

Claim 127 (Previously Presented): The composition of claim 125, wherein said modified nucleotides comprise modified nucleotides which increase the association constant with the complementary nucleotide by at least about 20 percent.

Claim 128 (Previously Presented): The composition of claim 125, wherein said modified nucleotides comprise modified nucleotides which increase the association constant with the complementary nucleotide by at least about 70 percent.

Claim 129 (Previously Presented): The composition of claim 125, wherein at least about 10 percent of the nucleotides in said second sequence is modified.

Claim 130 (Previously Presented): The composition of claim 129, wherein said modification has been carried out on a modified nucleotide is selected from the group consisting of a 5-halogenated pyrimidine nucleotides, 5-methyldeoxycytidine, diaminopurine deoxynucleotide, ribonucleotides and 2'-alkylated ribonucleotides.

Claim 131 (Previously Presented): The composition of claim 129, wherein said modified nucleotide comprises a 5-halogenated pyrimidine nucleotide.

Claim 132 (Previously Presented): The composition of claim 129, wherein said modified nucleotide comprises 5-bromodeoxyuridine.

Claim 133 (Withdrawn): The composition of claim 129, wherein said modified nucleotide comprises 5-methyldeoxycytidine.

Claim 134 (Previously Presented): The composition of claim 117, which further comprises at least one moiety attached to a terminus of the oligo- or polynucleotide, said moiety conferring exonuclease resistance to the terminus to which it is attached.

Claim 135 (Previously Presented): The composition of claim 134, wherein said moiety is attached to a terminal nucleotide.

Claim 136 (Previously Presented): The composition of claim 135, wherein said moiety is indirectly attached to a terminal nucleotide.

Claim 137 (Previously Presented): The composition of claim 1134, wherein said moiety is attached to the deoxyribose moiety at the hydroxyl group of a terminal nucleotide.

Claim 138 (Withdrawn): The composition of claim 134, wherein said moiety is attached to the phosphate moiety of a terminal nucleotide.

Claim 139 (Withdrawn): The composition of claim 134, where said moiety is selected from the group consisting of intercalating agents, isoureas, carbodiimides and N-hydroxybenzotriazoles.

Claim 140 (Previously Presented): The composition of claim 137, wherein said moiety comprises a methylthiophosphonate.

Claim 141 (Previously Presented): The composition of claim 134, wherein said moiety is selected from the group consisting of polypeptides and proteins.

Claim 142 (Withdrawn): The composition of claim 134, wherein said moiety is a 2',3'-dideoxyribose nucleotide attached to the 3'-terminal nucleotide through a phosphodiester linkage.

Claim 143 (Withdrawn): The composition of claim 142, wherein said 2',3'-dideoxyribose nucleotide comprises a modified 2', 3'- dideoxyribose nucleotide.

Claim 144 (Previously Presented): The composition of claim 117, further comprising a modification which permits detection of the displacer-recipient complex.

Claim 145 (Previously Presented): The composition of claim 144, wherein said modification comprises a member selected from the group consisting of non-radioactive labels, radioactive labels, fluorescent labels, chemiluminescent labels, enzymes and targets for detection.

Claim 146 (Previously Presented): The composition of claim 144, wherein said modification is selected from the group consisting of biotin moieties, phosphororthioate linkages and antigens.

Claim 147 (Previously Presented): The composition of claim 117, further comprising a modification which allows capture of the displacer-recipient complex by affinity chromatography.

Claim 148 (Currently Amended): An artificially constructed polynucleotide hybrid comprising a naturally occurring recipient polynucleotide duplex hybridized to the nucleic acid displacer composition of any one of claims 118-125, 127-132, 134-137, 140, 141, and 144-147.

Claim 149 (Withdrawn): A process for modifying a recipient polynucleotide duplex comprising contacting under complex forming conditions such recipient polynucleotide duplex with the nucleic acid displacer composition of claim 118.

Claim 150 (Withdrawn): The process of claim 149, wherein at least one of the nucleotides complementary to one strand of said recipient polynucleotide duplex is modified to increase the stability of the displacer-recipient complex.

Claim 151 (Withdrawn): The process of claim 149, wherein at least one of the nucleotides complementary to one strand of a recipient polynucleotide duplex is modified to increase the melting temperature of the displacer-recipient complex.

Claim 152 (Withdrawn): The process of claim 151, wherein said modified nucleotides comprise modified nucleotides which increase the association constant with the complementary nucleotides by at least about 20 percent.

Claim 153 (Withdrawn): The process of claim 149, wherein said modification is in the second sequence of the displacer.

Claim 154 (Withdrawn): The process of claim 153, wherein at least about 10 percent of the nucleotides in said second sequence is modified.

Claim 155 (Withdrawn): The process of claim 153, wherein said modification comprises a modified base member selected from the group consisting of 5-halogenated pyrimidine nucleotides, 5-methyldeoxycytidine, diaminopurine deoxynucleotide, ribonucleotides and 2'-alkylated ribonucleotides.

Claim 156 (Withdrawn): The process of claim 153, wherein said modification is carried out on a modified nucleotide comprising 5-halogenated pyrimidine nucleotide.

Claim 157 (Withdrawn): The process of 153, wherein said modification is carried out on a modified nucleotide comprising 5-bromodeoxyuridine.

Claim 158 (Withdrawn): The process of claim 153, wherein said modification is carried out on a modified nucleotide comprising 5-methyldeoxycytidine.

Claim 159 (Withdrawn): The process of claim 159, wherein said displacer contains at least one moiety attached to a terminus of the oligo- or polynucleotide, said moiety conferring endonuclease resistance to the terminus to which it is attached.

Claim 160 (Withdrawn): The process of claim 159, wherein said moiety is attached to a terminal nucleotide.

Claim 161 (Withdrawn): The process of claim 159, wherein said moiety is indirectly attached to a terminal nucleotide.

Claim 162 (Withdrawn): The process of claim 159, wherein said moiety is attached to the deoxyribose moiety at the hydroxyl group of a terminal nucleotide.

Claim 163 (Withdrawn): The process of claim 159, wherein said moiety is attached to the phosphate moiety of a terminal nucleotide.

Claim 164 (Withdrawn): The process of claim 159, where said moiety is selected from the group consisting of intercalating agents, isoureas, carbodiimides and N-hydroxybenzotriazoles.

Claim 165 (Withdrawn): The process of claim 161, wherein said moiety is a methythiophosphonate.

Claim 166 (Withdrawn): The process of claim 161, wherein said moiety is selected from the group consisting of polypeptides and proteins.

Claim 167 (Withdrawn): The process of claim 161, wherein said moiety comprises a 2',3'-dideoxyribose nucleotide attached to the 3'-terminal nucleotide through a phosphodiester linkage.

Claim 168 (Withdrawn): The process of claim 167, wherein said 2',3'-dideoxyribose nucleotide comprises a modified 2',3'-dideoxyribose nucleotide.

Claim 169 (Withdrawn): The process for labeling a displacer-recipient complex comprising contacting a recipient polynucleotide duplex with the displacer recited in claim 161 under complex forming conditions, wherein said displacer contains a modification which will permit detection of the displacer-recipient complex.

Claim 170 (Withdrawn): The process of claim 169, wherein said modification comprises a member selected from the group consisting of radioactive labels, fluorescent and chemiluminescent labels, enzymes and targets for detection.

Claim 171 (Withdrawn): The process of claim 169, wherein said modification comprises one or more targets for affinity chromatography.

Claim 172 (Withdrawn): The process of claim 169, wherein said modification is selected from the group consisting of biotin moieties, antigens and phosphorothioate linkages.

Claim 173 (Withdrawn): In a process for capturing an artificially constructed nucleic acid hybrid by affinity chromatography, the improvement comprising modifying the hybrid by the process of claim 149.

Claim 174 (Withdrawn): In a process for enriching a recipient polynucleotide duplex in a population of polynucleotide duplexes, the improvement comprising labeling the recipient polynucleotide duplex by the process of claim 149.

Claim 175 (Withdrawn): In a process for the site-specific addition, deletion or alteration of nucleotides in a recipient polynucleotide duplex, the improvement comprising modifying the duplex by the process of claim 149.

Claim 176 (Withdrawn): In a process for repairing a mutational lesion comprising replacing a naturally occurring strand of nucleic acid with a modified strand of nucleic acid, the improvement comprising introducing said modified strand of nucleic acid to the naturally occurring duplex by the process of claim 149, and displacing said naturally occurring strand thereby.

Claim 177 (Withdrawn): A process for site-specific addition, deletion or alteration of nucleotides in a recipient polynucleotide duplex in a cell, said process comprising the steps of:

i) providing said nucleic acid displacer composition of claim 117; and

ii) introducing said composition into said cell.

Claim 178 (Withdrawn): A process for repairing a mutational lesion in a cell, said process comprising the steps of:

i) providing said nucleic acid displacer composition of claim 117; and

ii) introducing said composition into said cell.

Claim 179 (Previously Presented): The nucleic acid displacer composition of claim 117, wherein the recipient polynucleotide duplex is a polydeoxynucleotide duplex.

Claim 180 (Previously Presented): The nucleic acid displacer composition of claim 117, wherein the oligo- or polynucleotide displacer comprises a displacer strand and a linker strand.